What is claimed is:

1. A liquid-crystal display device which comprises a first substrate having thereon plural electrodes that include a scanning signal line, an image signal line, a pixel electrode and others; a second substrate having thereon a color filter, a light-shielding film and others, and spaced from the first substrate via a predetermined distance therebetween; an alignment layer formed on each of the facing surfaces of the two substrates; spacers to define the distance between the two substrates; and a liquid crystal layer disposed between the two substrates, to which is applied a voltage between the electrodes to thereby form an electric field nearly parallel to the surfaces of the substrates so that the liquid crystal molecules therein undergo in-plane response to the electric field;

the device being characterized in that the surface of each spacer is coated with a thermoplastic polymer prepared through graft polymerization of a molecular compound having a vinyl group or a polymerization initiator, with one or more polymerizable monomers at the grafting point of the vinyl group or the polymerization initiator, and each spacer is fixed onto the alignment layer on at least one of the first substrate and the second substrate, via van der Waals bonding or hydrogen bonding between the functional group of the monomers constituting the thermoplastic polymer and the alignment

layer.

2. The liquid-crystal display device as claimed in claim 1, wherein the thermoplastic polymer has a number of long-chain alkyl groups in its surface.

3. A liquid-crystal display device which comprises a first substrate having thereon plural electrodes that include a scanning signal line, an image signal line, a pixel electrode and others; a second substrate having thereon a color filter, a light-shielding film and others, and spaced from the first substrate via a predetermined distance therebetween; an alignment layer formed on each of the facing surfaces of the two substrates; spacers to define the distance between the two substrates; and a liquid crystal layer disposed between the two substrates, to which is applied a voltage between the electrodes to thereby form an electric field nearly parallel to the surfaces of the substrates so that the liquid crystal molecules therein undergo in-plane response to the electric field;

the device being characterized in that the spacers are made of a polymer compound having a number of long-chain alkyl groups in its surface.

4. The liquid-crystal display device as claimed in claim 2 ~~or 3~~, wherein, in the polymer compound for the spacers, the long-chain alkyl groups are bonded to the graft polymer chains through graft polymerization.

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5. The liquid-crystal display device as claimed in claim 2 ~~any one of claims 2 to 4~~, wherein the long-chain alkyl groups each have at least 6 carbon atoms.

6. A liquid-crystal display device which comprises a first substrate having thereon plural electrodes that include a scanning signal line, an image signal line, a pixel electrode and others; a second substrate having thereon a color filter, a light-shielding film and others, and spaced from the first substrate via a predetermined distance therebetween; an alignment layer formed on each of the facing surfaces of the two substrates; spacers to define the distance between the two substrates; and a liquid crystal layer disposed between the two substrates, to which is applied a voltage between the electrodes to thereby form an electric field nearly parallel to the surfaces of the substrates so that the liquid crystal molecules therein undergo in-plane response to the electric field;

the device being characterized in that a projecting pattern is locally formed below the alignment layer on the first substrate but above one or both of the scanning signal line and the image signal line, and the distance between the first substrate and the second substrate is defined by the spacers disposed on the projecting pattern while the spacers in the other region are so controlled that they are not kept in contact with any one of the first substrate and the second substrate.

7. A liquid-crystal display device which comprises a first substrate having thereon plural electrodes that include a scanning signal line, an image signal line, a pixel electrode and others; a second substrate having thereon a color filter, a light-shielding film and others, and spaced from the first substrate via a predetermined distance therebetween; an alignment layer formed on each of the facing surfaces of the two substrates; spacers to define the distance between the two substrates; and a liquid crystal layer disposed between the two substrates, to which is applied a voltage between the electrodes to thereby form an electric field nearly parallel to the surfaces of the substrates so that the liquid crystal molecules therein undergo in-plane response to the electric field;

the device being characterized in that a projecting pattern is locally formed below the alignment layer on the second substrate but above the light-shielding film, and the distance between the first substrate and the second substrate is defined by the spacers disposed on the projecting pattern while the spacers in the other region are so controlled that they are not kept in contact with any one of the first substrate and the second substrate.

8. The liquid-crystal display device as claimed in claim 7, wherein the projecting pattern has a height of at least 0.6 μm.

9. A liquid-crystal display device which comprises a first substrate having thereon plural electrodes that include a scanning signal line, an image signal line, a pixel electrode and others; a second substrate having thereon a color filter, a light-shielding film and others, and spaced from the first substrate via a predetermined distance therebetween; an alignment layer formed on each of the facing surfaces of the two substrates; spacers to define the distance between the two substrates; and a liquid crystal layer disposed between the two substrates, to which is applied a voltage between the electrodes to thereby form an electric field nearly parallel to the surfaces of the substrates so that the liquid crystal molecules therein undergo in-plane response to the electric field;

the device being characterized in that projecting patterns are locally formed below the alignment layer on the first substrate but above one or both of the scanning signal line and the image signal line, and below the alignment layer on the second substrate but above the light-shielding film in such a manner that the two patterns face to each other, and the distance between the first substrate and the second substrate is defined by the spacers disposed between the facing projecting patterns while the spacers in the other region are so controlled that they are not kept in contact with any one of the first substrate and the second substrate.

10. The liquid-crystal display device as claimed in claim 9, wherein the total height of the projecting patterns formed on the first substrate and the second substrate is at least 0.6 μm.

11. The liquid-crystal display device as claimed in ~~any one of claims 6 to 10~~ claim 6, wherein the projecting pattern is made of pigment or an insulating material such as SiN, $SiO_2$ or the like.

12. A liquid-crystal display device which comprises a first substrate having thereon plural electrodes that include a scanning signal line, an image signal line, a pixel electrode and others; a second substrate having thereon a color filter, a light-shielding film and others, and spaced from the first substrate via a predetermined distance therebetween; an alignment layer formed on each of the facing surfaces of the two substrates; spacers to define the distance between the two substrates; and a liquid crystal layer disposed between the two substrates, to which is applied a voltage between the electrodes to thereby form an electric field nearly parallel to the surfaces of the substrates so that the liquid crystal molecules therein undergo in-plane response to the electric field;

the device being characterized in that the diameter of each spacer is smaller in some degree than the distance between the two substrates so that the spacers are not kept in contact

with any one of the first substrate and the second substrate in at least the display area.

13. The liquid-crystal display device as claimed in claim 12, wherein the diameter, d, of each spacer satisfies $D - d > 0.2$ μm in which D indicates the distance between the two substrates.

14. A liquid-crystal display device which comprises a first substrate having thereon plural electrodes that include a scanning signal line, an image signal line, a pixel electrode and others; a second substrate having thereon a color filter, a light-shielding film and others, and spaced from the first substrate via a predetermined distance therebetween; an alignment layer formed on each of the facing surfaces of the two substrates; spacers to define the distance between the two substrates; and a liquid crystal layer disposed between the two substrates, to which is applied a voltage between the electrodes to thereby form an electric field nearly parallel to the surfaces of the substrates so that the liquid crystal molecules therein undergo in-plane response to the electric field;

the device being characterized in that the inner pressure in the area where liquid crystal molecules are disposed is lower by at most 0.3 $kgf/cm^2$ than the atmospheric pressure.

15. A process of fabricating a liquid-crystal display

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device, which comprises;

a step of forming a panel by sealing a first substrate having plural electrodes that include a scanning signal line, an image signal line, a pixel electrode and others, and an alignment layer all formed thereon, and a second substrate having a color filter, a light-shielding film and an alignment layer all formed thereon, with a sealant formed between the two substrates and around the outer peripheries of the substrates in such a manner that it partly reaches the edges of the substrates to form an opening through which liquid crystal is to be injected into the space between the sealed substrates, and

a step of setting the panel in a liquid crystal-injecting unit having therein a container filled with liquid crystal, evacuating both the liquid crystal-injecting unit and the panel, putting the opening of the panel into the liquid crystal in the container, thereafter restoring the liquid crystal-injecting unit to have an atmospheric pressure in that condition so that the liquid crystal is injected into the panel through its opening owing to the inner pressure difference between the unit and the panel, and finally sealing the opening of the panel in such a condition that the panel receives no external pressure.

16. A process of fabricating a liquid-crystal display device, which comprises;

a step of forming a panel by sealing a first substrate having plural electrodes that include a scanning signal line, an image signal line, a pixel electrode and others, and an alignment layer all formed thereon, and a second substrate having a color filter, a light-shielding film and an alignment layer all formed thereon, with a sealant formed between the two substrates and around the outer peripheries of the substrates in such a manner that it partly reaches the edges of the substrates to form an opening through which liquid crystal is to be injected into the space between the sealed substrates, and

a step of setting the panel in a liquid crystal-injecting unit having therein a container filled with liquid crystal, evacuating both the liquid crystal-injecting unit and the panel, putting the opening of the panel into the liquid crystal in the container, thereafter restoring the liquid crystal-injecting unit to have an atmospheric pressure in that condition so that the liquid crystal is injected into the panel through its opening owing to the inner pressure difference between the unit and the panel, then keeping the panel as it is until its inner pressure increases to be lower by at most 0.3 $kgf/cm^2$ than the atmospheric pressure, and finally sealing the opening of the panel.